

INTRODUCTION

BACKGROUND:

Traumatic brain injury (TBI) is emerging as a major health burden and socio-economic problem affecting all countries and societies of the world.

Classification based on clinical severity, supplemented by structural and functional neuro- imaging have significantly advanced our knowledge and understanding of the mechanism involved in head injury, creating opportunities for effective intervention and treatment.

TBI is a major cause for concern around the world because of the many fold increase in vehicle accidents, violence and falls inspite of safety education programmes , effective law enforcement, improved techonology to protect people from automobile accidents, better helmets and seat belts.

There is an increase in morbidity and mortality associated with such accidents and the vulnerable groups are the most productive members of the society and children.

AIM AND OBJECTIVE OF THIS STUDY

To study the strength of the prognostic indicators chosen on the outcome in cases of TBI.

Inclusion criteria:

- 1) TBI patients more than 5 years of age admitted in the above mentioned wards.
- 2) $GCS \leq 13$.

Exclusion criteria:

- 1) patients on prolonged treatment for TBI at other hospitals
- 2) unknown patients
- 3) pregnant women
- 4) patients with bleeding disorders and hypertensive bleeds
- 5) patients brought dead
- 6) patients with third nerve damage caused by direct orbital trauma resulting in a dilated and/or a fixed pupil

The study period is from June 2013 to August 2014.

Prospectively collected, individual, patient data was used.

A sample size of 200 patients was taken as the study group.

The five prognostic parameters, ie demography, GCS, pupillary reactivity, CT characteristics and comorbid conditions of this group was analysed in detail.

At the end of the study the prognostic indicators were categorized based upon their impact on outcome as most important , less important and least important.

The 6 month outcome probability score was defined using the GOS score.

MATERIALS AND METHODS

The study is a prospective interventional study to highlight the importance of the five selected prognostic indicators on the outcome of the disease and to grade them accordingly.

Design

The study is being conducted among inpatients in the Zero delay ward , Trauma ward , Neuro Surgical ward and post operative ward of Neuro Surgery department at Government Coimbatore Medical College Hospital and who presented within 24 hours of the injury.

Methodology

Around 200 TBI patients admitted and who fit into the moderate to severe injury criteria were analysed. The five criteria chosen were applied and the outcome recorded.

The criteria were then graded according to their outcome, by the Glasgow Outcome Scale at 6 months.

This has 5 categories:

- 1) DEAD
- 2) VEGETATIVE STATE
- 3) SEVERE DISABILITY
- 4) MODERATE DISABILITY
- 5) GOOD RECOVERY

In order to simplify analysis this was further considered into :

- 1) Favourable (good or moderate recovery)
- 2) Unfavourable(severe disability,vegetative,dead)

The study was compared to the outcome obtained in the IMPACT study

OUTCOME OF THIS STUDY:

- 1) All the chosen predictors had a strong correlation to the 6 month Glasgow outcome scale (GOS)
- 2) An increase in age was associated with twice the risk for poor outcome compared to younger age group.
- 3) The lower the GCS at the time of admission , the worse was the outcome.

With GCS above 7, there was a significant reduction in the mortality with improvement in outcome.
- 4) Pupillary size and reactivity had a direct bearing on the outcome with unreactive pupils having worst prognosis.
- 5) Patients with pupillary inequality at the time of admission , who were operated upon earlier, had better outcome even with low GCS.
- 6) Comorbid conditions especially hypotension and hypoxia was associated with poor outcomes.
- 7) CT features with features of mass effect and increased intra cranial pressure had a corresponding rise in risk and poor outcome.Effacement of the basal cisterns and significant midline shift also contributed significantly to poor prognosis.
- 8) Patients with EDH had a comparatively good outcome even with low GCS compared to other CT feature

CONCLUSION:

- These prognostic indicators gave a reasonable discrimination among patients for good and poor outcome 6 months after traumatic brain injury.
- Patients who presented with GCS 5 and below had 100% mortality. Patients with dilated pupils and hypotension along with hypoxia also had a mortality rate of 100%.
- Patients with unequal pupils who underwent early surgery had a significant improvement in outcome compared to those who didn't undergo surgery.
- Patients above the age of 70 had 82% unfavourable outcome.
- Patients with multiple lesions along with mass effect and midline shift at the time of admission also had a poor prognosis.
- Based on these prognostic variables, probable outcome could be arrived at, thereby enabling us to take suitable decisions regarding the use of appropriate medical or surgical management techniques in order to achieve a better outcome in these group of patients.